From:	"Tomlinson, Priscilla \(ECY\)" <PTOM461@ECY.WA.GOV>
To:	"Hale, Elly" <Hale.Elly@epa.gov>
CC:	"Liu, Jing (ECY)" <JLIU461@ECY.WA.GOV>
	"Inouye, Laura \(ECY\)" <Lino461@ECY.WA.GOV>
Date:	10/22/2020 4:18:20 PM
Subject:	FW: toluene to benzyl alcohol
Attachments:	ParalesEA_2008_MicrobialTolueneDegrad.pdf
	EvansEA_1992_TolueneDegrad.pdf

Hi Elly,

Laura kindly provided the two attached documents which indicate that benzyl alcohol is a potential biodegradation intermediate from toluene.

The Parales et al. (2008) discussion provides a nice figure of microbial and fungal degradation pathways (Figure 1.1 on pdf page 4). Benzyl alcohol shows up as an intermediate on lines five, six, and seven.

The study conducted by Evans et al. (1992) did not find benzyl alcohol as a dead end metabolite but did mention other studies that either postulated benzyl alcohol would be produced or did find it. The relevant statements on pdf pages 1, 5, and 6 are highlighted for your convenience.

We would be interested in knowing if any of the potential toluene degradation products that are listed with benthic criteria in the Sediment Management Standards are present in ground water at the Rhone-Poulenc site and are potentially getting into the river. These include 2,4-dimethylphenol, 2-methylphenol (o-cresol), 4-methylphenol (p-cresol), and benzoic acid.

Regards,
Priscilla Tomlinson
425-649-7135
ptom461@ecy.wa.gov
Ecology offices are closed, but we're still operating. You can reach me by phone or email.

From: Tomlinson, Priscilla (ECY)
Sent: Tuesday, October 20, 2020 12:09 PM
To: 'Hale, Elly' <Hale.Elly@epa.gov>
Subject: RE: toluene to benzyl alcohol

I got that information from Laura Inouye. I'll contact her and get back to you.

Regards,
Priscilla Tomlinson
425-649-7135
ptom461@ecy.wa.gov
Ecology offices are closed, but we're still operating. You can reach me by phone or email.

From: Hale, Elly <Hale.Elly@epa.gov>
Sent: Tuesday, October 20, 2020 12:07 PM
To: Tomlinson, Priscilla (ECY) <PTOM461@ECY.WA.GOV>
Subject: FW: toluene to benzyl alcohol

Priscilla – Can you shed any light on Janette's question? I know how busy you all are, and Chance has a lot going on, but perhaps you've already looked at it?

Elly Hale
US Environmental Protection Agency R10
1200 Sixth Avenue, Suite 155, M/S ***12-D12-1***
Seattle, Washington 98101-3188
(206) 553-1215
hale.elly@epa.gov

From: Knittel, Janette <Knittel.Janette@epa.gov>
Sent: Tuesday, October 20, 2020 9:22 AM
To: Hale, Elly <Hale.Elly@epa.gov>
Subject: FW: toluene to benzyl alcohol

Hey Elly. After the SMARM presentations I sent this email to Chance Asher but haven't heard back. I can't take for face value that just because toluene is present it's a source of benzyl alcohol. Do you have any insight into how toluene could be converted to benzyl alcohol in an environmental setting, like what the conditions need to be, what needs to be present, what the reaction is? And where I can go for more information?
Thanks!
Janette
PS Have you received the slides from that meeting? If so please forward to me.

From: Knittel, Janette
Sent: Wednesday, September 30, 2020 1:08 PM
To: 'chance.asher@ecy.wa.gov' <chance.asher@ecy.wa.gov>
Subject: toluene to benzyl alcohol

Hi Chance,
I attended the morning sessions of today's SMARM and was particularly interested in the presentation on benzyl alcohol. You mentioned that toluene oxidation creates benzyl alcohol, and pointed out there is a source of toluene in the LDW. I'm guessing that you were referring to the former Rhone-Poulenc facility, which is a RCRA EPA project for which I am the project manager. I'm hoping you can give me more information about this toluene conversion to benzyl alcohol. In my research I've found that the toluene to benzyl alcohol conversion can be done in a laboratory/industrial setting with catalysts and steps, but I couldn't find any evidence that it happens in an environmental setting. Do you have anything specific you can share with me about how toluene may be a source of benzyl alcohol in the LDW sediments?

Thank you,
Janette

Janette Knittel
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